CLAIMS:

1. A cutting tool for preparing a cavity in a bone for receiving a component of an orthopaedic joint prosthesis, in which the shape of the tool is based on a shell having a rotationally symmetrical outer surface, the tool having at least one portion cut out from it, the cut out portion extending from the peripheral edge of the shell toward the pole of the shell, such that the tool has no more than one plane of symmetry passing through the axis of rotation, in which the external surface presents at least two outwardly directed cutting teeth, arranged such that the net translational force on the tool in the plane which is perpendicular to the axis of rotation, resulting from the accumulated resistance of the teeth when rotated against a rotationally symmetrical cavity in which the tool is a snug fit, is approximately balanced.

2. A cutting tool as claimed in claim 1, in which the teeth are arranged into at least two sets of teeth, wherein the teeth of each set are arranged on the contacting surface such that the net translational force on the tool in the plane which is perpendicular to the axis of rotation, resulting from the accumulated resistance of the teeth of each set when rotated against a rotationally symmetrical cavity in which the tool is a snug fit, is approximately balanced.

3. A cutting tool as claimed in claim 2, in which the sets of teeth consist of two teeth.

4. A cutting tool as claimed in claim 2, in which the sets of teeth consist of three teeth.

5. A cutting tool as claimed in claim 2, in which the sets of teeth consist of more than three teeth.

6. A cutting tool as claimed in either of claims 3, 4 or 5, in which the teeth within any of the sets are the same distance from the axis of rotation of the tool, and the length of an arc taken between any pair of adjacent teeth within any of the sets of teeth is equal for each pair of adjacent teeth within that set.

7. A cutting tool as claimed in claim 1, in which the teeth are arranged on the contacting surface asymmetrically with respect to the axis of rotation.

8. A cutting tool as claimed in claim 1, in which the teeth are arranged such that their arrangement is that of at least one interrupted spiral.

9. A cutting tool as claimed in claim 1, in which the teeth protrude outwardly from the external surface.

10. A cutting tool as claimed in claim 1, which includes a bar which extends across the interior of the shell, from one side to the opposite other side, by which the shell can be engaged by an instrument for manipulation.

11. cutting tool as claimed in claim 1, in which the shell is intact in a region around the pole.

12. A cutting tool as claimed in claim 11, in which the shape of the external surface of the shell in the region around the pole is generally that of a part of a sphere.

13. A cutting tool as claimed in claim 12, in which the ratio of the distance from the edge of the circular region to the pole to the ratio of the shell to the pole (both distances being measured along the spherical surface of the shell) is not more that about 0.5.

14. A cutting tool as claimed in claims 11 to 13, in which teeth located within the region around the pole are not arranged on the contacting surface such that the net translational force on the tool resulting from the accumulated resistance of the teeth when rotated against the bone tissue is approximately balanced.